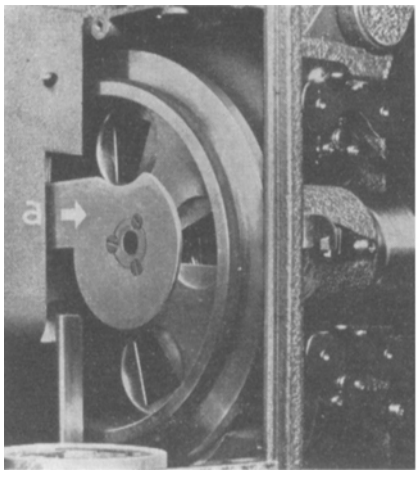

Fig. 5. Moveable diaphragm "a" centered in optical axis for single frame operation of projector.

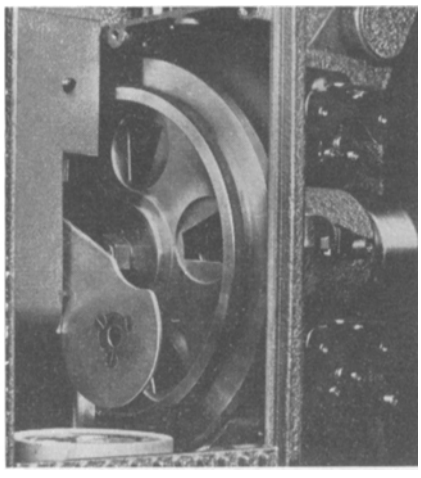

Fig. 6. Diaphragm displaced, allowing full illumination for continuous projection.

mainly on the intensity of the intermittent illumination.[2] Thus, if screen brightness is increased beyond the usual 10 to 14 footlamberts, or if the print being shown has unusually large highlight areas, a more or less gentle ripple will be perceptible to the average healthy observer.[3] Slowing the projector will naturally make the ripple more conspicuous. However, the student of research films has learned not to be distracted by ripple, nor even by frank pulsation, so long as it does not interfere with his perception of detail. The limit seems to be reached, for most observers, when the rate of intermittence has been slowed to about 60% of fusion frequency for the particular screen area being studied. With a three-blade shutter this means a "minimum tolerable projection speed" in the neighborhood of 10 frames/sec, with a four-blade shutter, in the neighborhood of 7.5, etc.

Experimental shutters having four, five and six blades were fitted to the Analyst, together with matching pull-down cams furnished by Eastman Kodak Co. The five-blade shutter which was finally chosen has the advantage of not requiring too drastic a pull-down cam, while at the same time permitting a 40% reduction of projection speed. As a result of the shutter alteration, so-called flicker-free projection speed becomes 9.6 instead of 16, and minimum tolerable speed becomes 6 instead of 10, thus somewhat narrowing the wide gap between continuous and single-frame operation.

The indexing clutch designed for the Analyst makes use of the outer rim of the new shutter as a bearing surface for the clutch idler shown at "a" in Fig. 3. On the right edge of the shutter can be seen the conventional half-moon recess in which the idler seats itself while the film is at rest. On either side of the recess are short ramps which act through the clutch arm linkage to open the drive-motor circuit just before the idler falls into place. The film can be advanced one frame at a time in either direction by touching a pushbutton which starts the small, geared-down motor seen at "c" in Fig. 4. This in turn lifts the clutch arm and closes the drive-motor circuit for one revolution, the small motor meanwhile shutting itself off again by means of a cam-actuated limit switch.

The speed control lever is located on the rear of the projector and is just visible at the extreme left of Fig. 1. The uppermost position of the lever brings the clutch idler into contact with the shutter rim for single framing, and also connects the drive motor with a Lee governor, set for about three shutter revolutions per second. The second lever position is transitional in that the drive motor is still connected with the Lee governor, but the indexing clutch is no longer operative. The third lever position disconnects the governor and cuts in a rheostat, making possible a choice of speeds from 5 to 15. The fourth position cuts out the rheostat and lets the projector run at a constant speed of 15.

During single-frame operation, a diaphragm is automatically positioned between the condenser and the shutter, balancing single-frame illumination with the intermittent illumination of the running projector as illustrated in Figs. 5 and 6. This system, suggested by Eastman Kodak Co., also increases the depth of focus of the projection lens during single framing and thus counteracts the tendency of the stopped film to go out of focus. An extra blower, shown in Figs. 1 and 2, cools the side of the film away from the lamp and makes it possible to stop on a frame indefinitely.

References

1. S. A. Weinberg, J. S. Watson and G. H. Ramsey, "X-ray motion picture techniques employed in medical diagnosis and research," *Jour. SMPTE, 59:* 300–308, Oct. 1952.
2. S. Hecht and C. D. Verrijp, "Influence of intensity, color, and retinal location on the fusion frequency of intermittent illumination," *Proc. Nat. Acad. Sci., 19:* 522, 1933.
3. N. Enzer, E. Simonson and S. Blackstein, "Fatigue of patients with circulatory insufficiency investigated by means of the fusion frequency of flicker," *Ann. Int. Med., 16:* 701, Apr. 1942.

News and Reports

Society Election and Business Meeting

The ballots were counted in Los Angeles on October 16, with the following results reported to the Membership during the 76th Convention Get-Together Luncheon on October 18. The following will serve for two years beginning January 1, 1955.

John G. Frayne, President
Barton Kreuzer, Executive Vice-President
Norwood L. Simmons, Editorial Vice-President
Byron Roudabush, Convention Vice-President
Edward S. Seeley, Secretary
Gordon A. Chambers, Governor, East
John W. Duvall, Governor, West
Lloyd T. Goldsmith, Governor, West
George Lewin, Governor, East
W. Lozier, Governor, Central
Malcolm G. Townsley, Governor, Central

(Election of Barton Kreuzer as Executive Vice-President creates a one-year vacancy for Financial Vice-President, an office to which Mr. Kreuzer was elected a year ago. His successor will be appointed by the Board of Governors in accordance with the Bylaws.

The following Section officials have been elected, the Chairmen and Secretary-Treasurers for one-year terms and the Managers for two. The three Section Chairmen, by virtue of office, also serve one-year terms as Society Governors.

Atlantic Coast Section
Everett Miller, Chairman
G. H. Gordon, Secretary-Treasurer
K. M. MacIlvain, Manager
W. H. Deacy, Manager
V. M. Salter, Manager

Central Section
J. L. Wassell, Chairman
K. M. Mason, Secretary-Treasurer
R. G. Herbst, Manager
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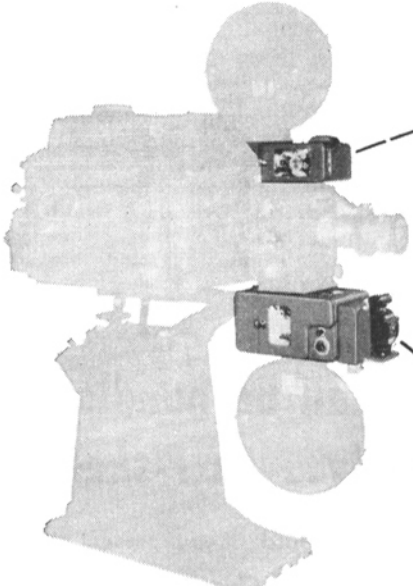

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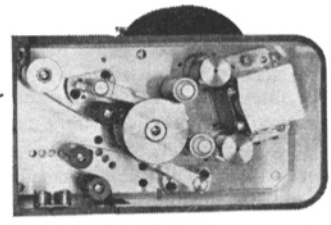

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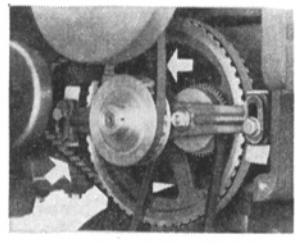

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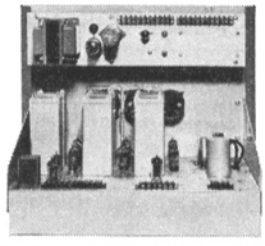

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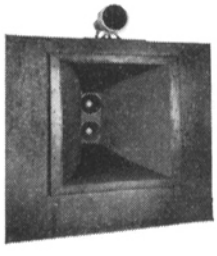

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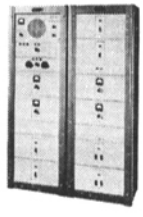

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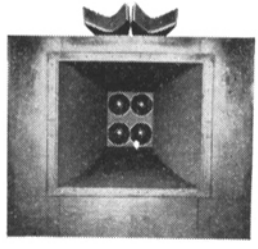

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The Annual Business Meeting of the Society on Monday, October 18, discussed and approved the proposed increases in membership fees to make them as follows:

Fellows and Active Members, $18.00
Associate Members, $12.00
Student Members (not changed), $5.00

The Board's considerations leading the Resolution for amending the Society's Bylaws were reported in the September *Journal*.

Education, Films and TV

As described in the August 1953 *Journal*, the **Rochester Institute of Technology** has for some time been working on plans to offer a degree program in its Department of Photography. These plans have now matured and beginning with the fall quarter it will be possible for students at the Institute to work toward the Bachelor of Science degree in photography. The new plan provides for the well established Associate in Applied Science degree program to be the basic educational program for the first two or three years of study. The BS program is built directly on top of the AAS plan and requires one or two additional years of study, depending upon the student's major course of study.

The second annual **American Film Assembly,** sponsored by the Film Council of America, will be held April 4–9, 1955, at the Waldorf-Astoria Hotel, New York. At the April 1954 Assembly some 360 16mm films were exhibited in 26 screening sessions, and attendance was over 1000. Climaxing the three-day affair were the Golden Reel Awards presented to the 12 films receiving the highest score in achievement of purpose in their respective categories.

The National Planning Committee of the American Film Assembly held regional meetings in Hollywood, New York and Evanston during the early summer. At these meetings and by subsequent correspondence the rules for the 1955 program were given detailed consideration. Now in the last stages of preparation, the Regulations and Procedures along with the Golden Reel Film Festival entry blanks will be in the mail by the end of September. They are also available on request from American Film Assembly, Film Council of America, 600 Davis St., Evanston, Ill. Deadline for entry in the Festival competition is January 15, 1955.

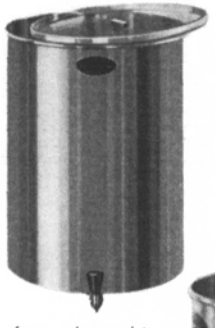
Rudy Bretz, Television Program and Production Consultant, author of several articles in this *Journal* and of the book *Techniques of Television Production* and coauthor of *The Television Program* and of *TV Scripts for Staging and Study*, has been named Production Consultant to the Alabama Educational Television Commission. The most progressive state in the union, as far as educational television is concerned, Alabama has under construction a three-station educational television network which will cover 90% of the state. The majority of this construction is financed by State funds, appropriated by the Alabama legislature. Mr. Bretz will oversee the design and construction of production facilities and take an active part in planning the programming of the network. Programming is expected to begin within the year.

Book Reviews

Television – The Electronics of Image Transmission in Color and Monochrome – 2d ed.

By V. K. Zworykin and G. A. Morton
Published (1954) by John Wiley & Sons, 440 Fourth Ave., New York, 16 ix + 1037 pp., 698 illus. 6 × 9 in. Price $17.50.

The second edition of this book has expanded as has the subject with which it deals. In the fourteen years since the first edition, color, improved camera tubes, video tape recording, industrial television and even community antenna systems have come into being and these have been treated in this revision.



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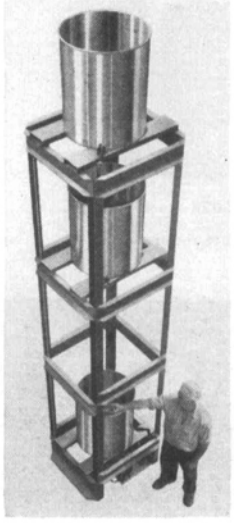

Jet Mixer... showing foot switch, 1/15 h.p. motor and 3-way valve. Supplied with plastic lines and hard rubber wheels. Sturdy stainless steel dolly frame for extra strength.

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